

- Notice -

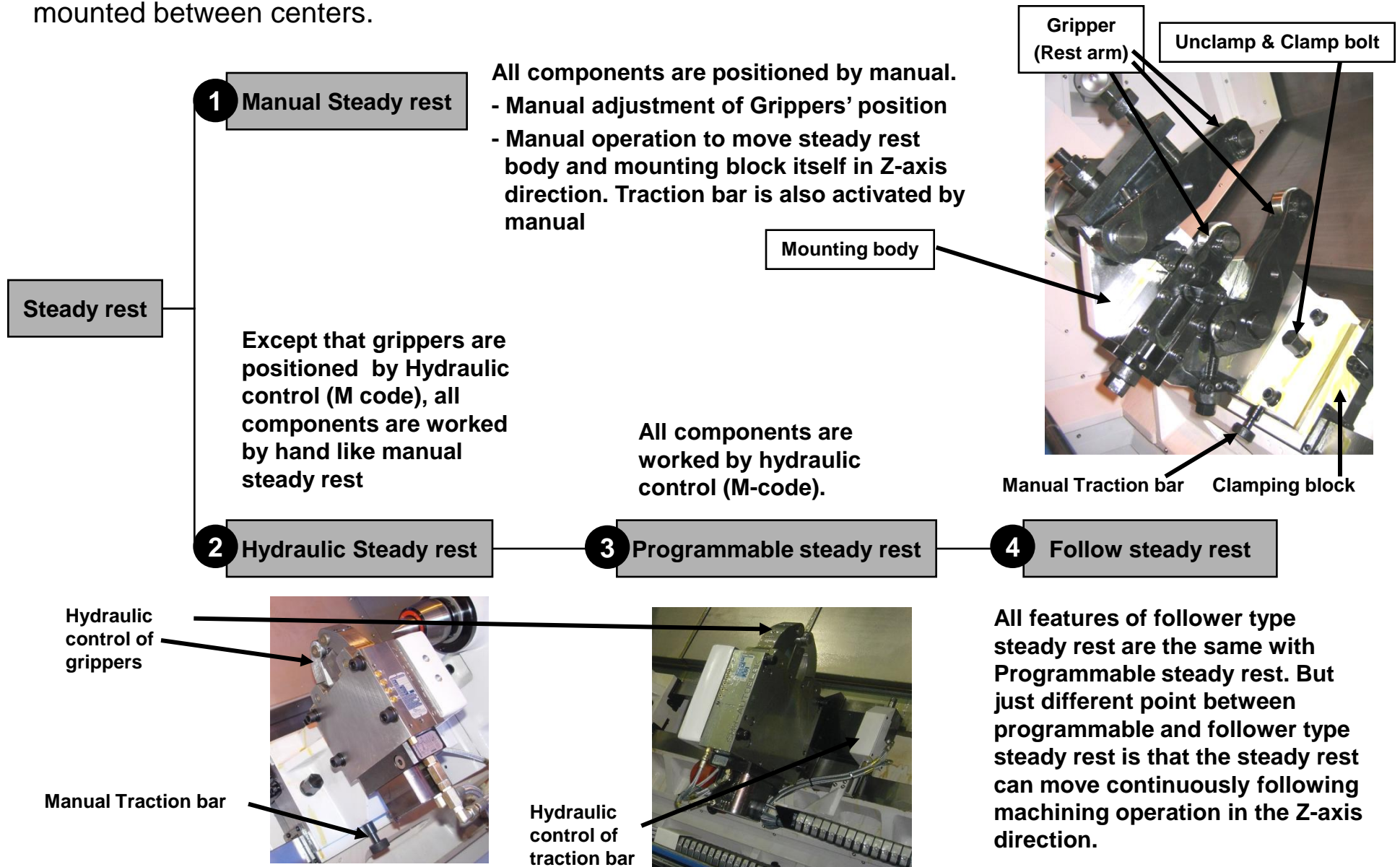
This guide shows general information about optional equipments which are available on Turning centers.

Each optional equipment has its own features and strong points in the view of practical usage. Please keep it mind that all turning centers can not be equipped with the following options because their applicability limited in real condition.

In order to accommodate customers' needs without fail, please contact your regional manager in advance to ascertain the availability of all optional features.

16. Steady Rest (1/7)

Steady rest is composed of 3-roller type grippers and is used to sustain long workpieces mounted between centers.



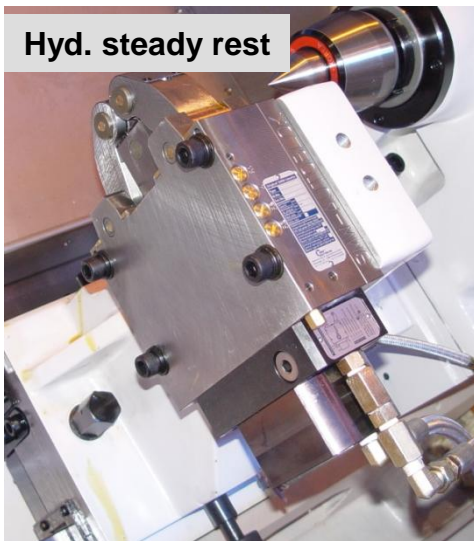


- Concentricity : Within 0.01mm
- Field retrofit : Applicable

Note1) Manual steady rest is available just on PUMA300, 400, 500, 600, 700, 800 series (without sub spindle)

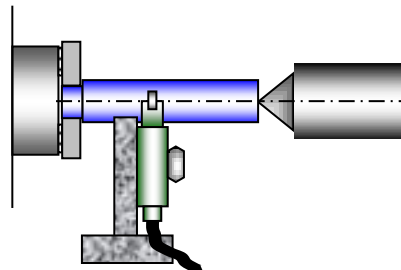
Note2) Hyd. Steady rest and Programmable steady rest are available just on PUMA240,300,400, 500,600, 700,800 series, PUMA1500,2000,2500 series (without Y-axis)

Notice1) Minimum and maximum part diameters are different depending on capacity of steady rest that is mounted on the machine without any interference with inner parts of the machine

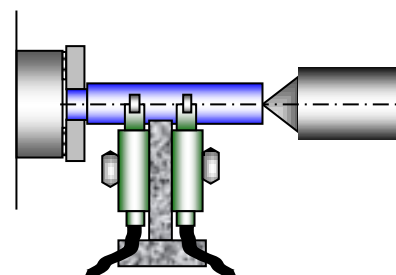


Applications

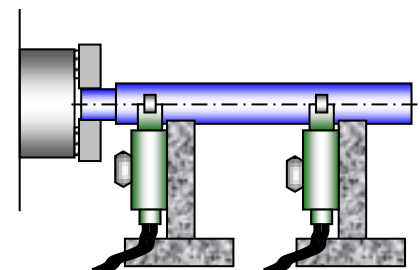
Single



Double



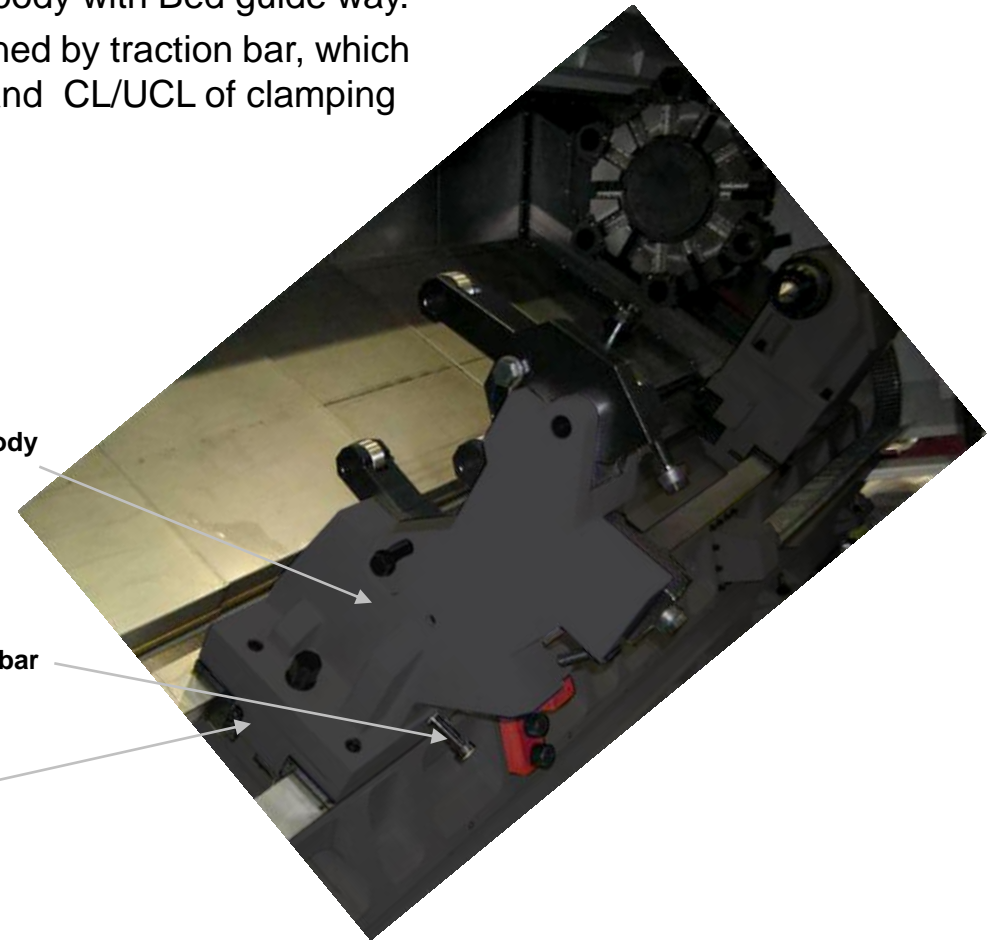
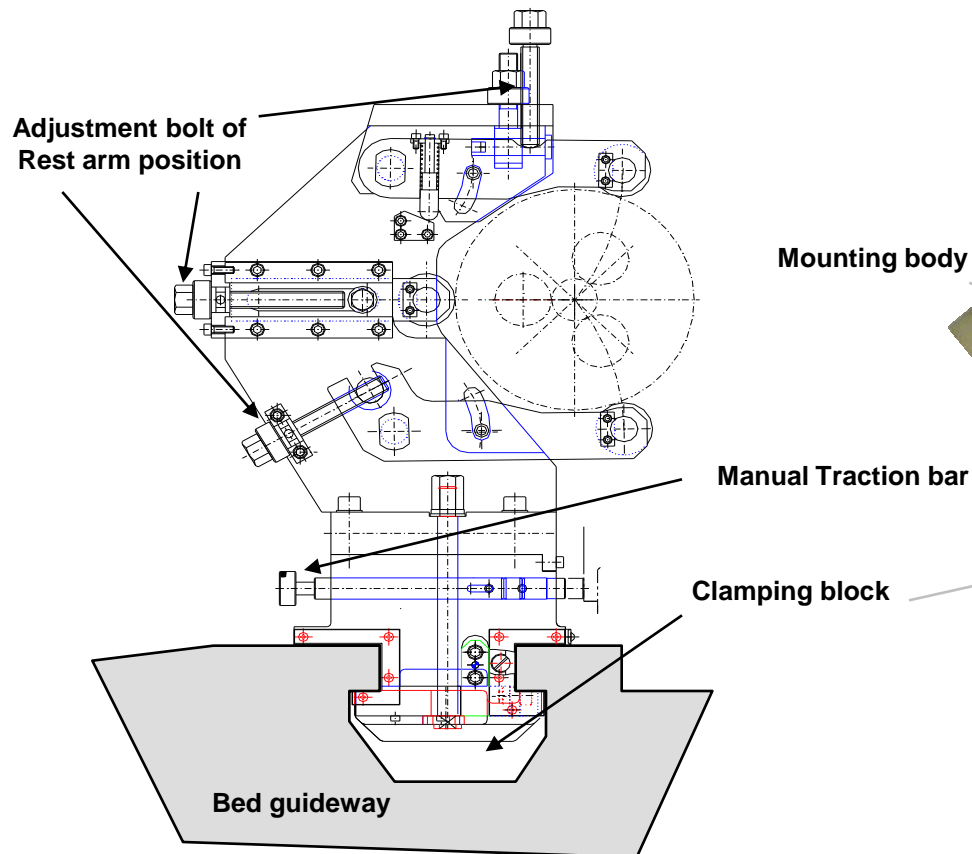
Twin



1 Manual Steady Rest

All activating parts(3 parts) are worked by manual

- 1 part : Gripper (REST ARM) movement to support part
- 2 part : CL/UCL of Clamping block to link mounting body with Bed guide way.
- 3 part : The mounting body of steady rest is positioned by traction bar, which engages with the saddle. The bar movement and CL/UCL of clamping block are Manual adjustment and operation



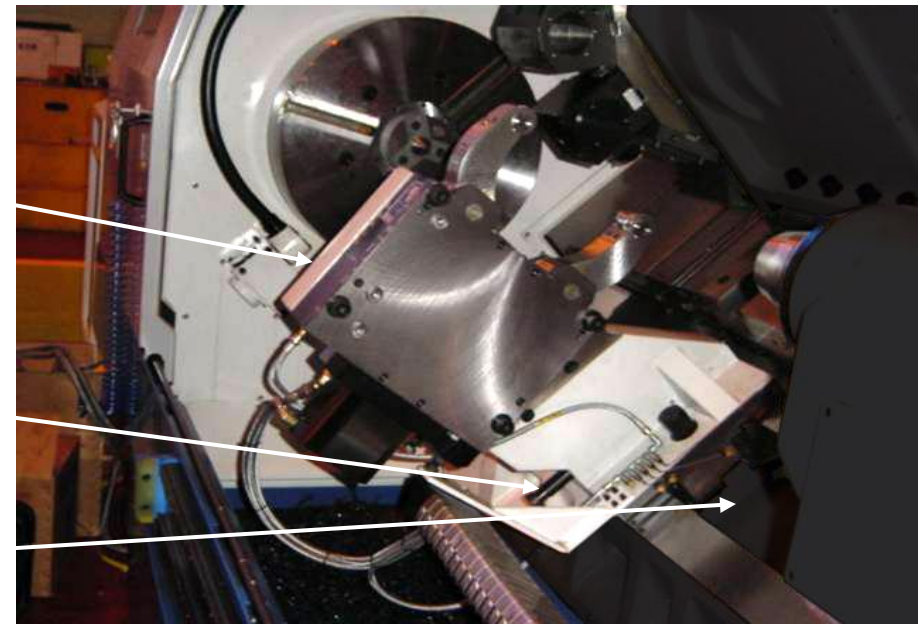
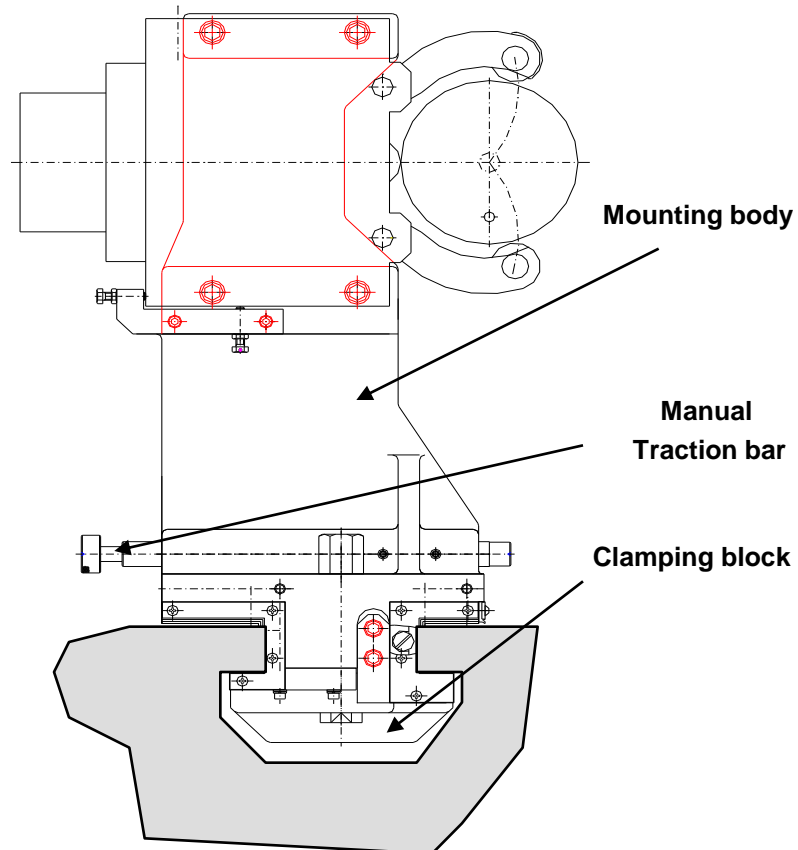
2 Hydraulic Steady Rest

1 part is worked by hydraulic power (M-code)

- 1 part : Gripper (REST ARM) movement to support part

2 activating parts are worked by manual

- 2 part : CL/UCL of Clamping block to link mounting body with Bed guide way.
- 3 part : The mounting body of steady rest is positioned by traction bar, which engages with the saddle. The bar movement and CL/UCL of clamping block are Manual adjustment and operation

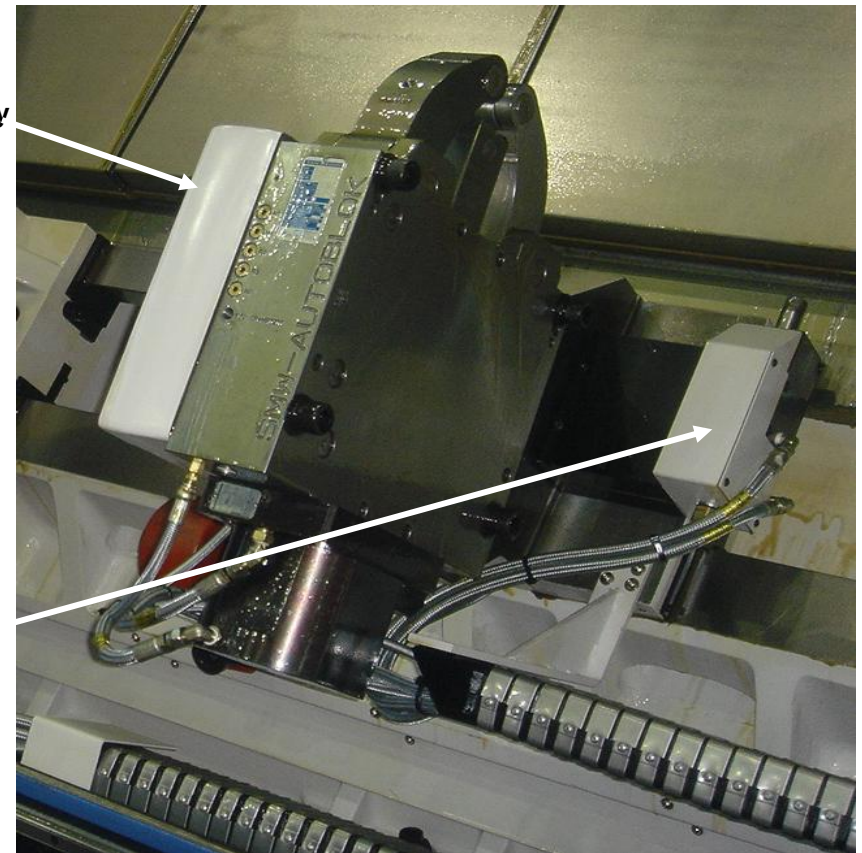
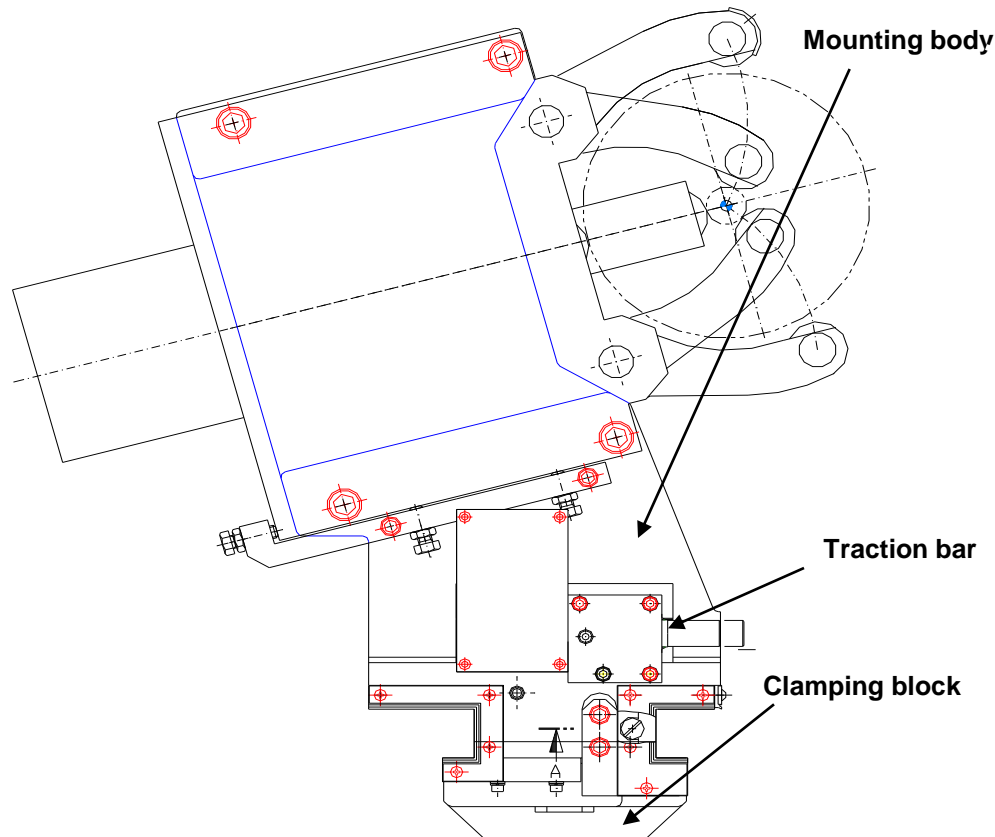


3 Programmable Steady Rest (Basic type)

All activating parts are worked by hydraulic control (M-code)

- 1 part : Gripper (REST ARM) movement to support part
- 2 part : CL/UCL of Clamping block to link mounting body with Bed guide way.
- 3 part : The mounting body of steady rest is positioned by traction bar, which engages with the saddle.

The bar movement and CL/UCL of clamping block are Manual adjustment and operation

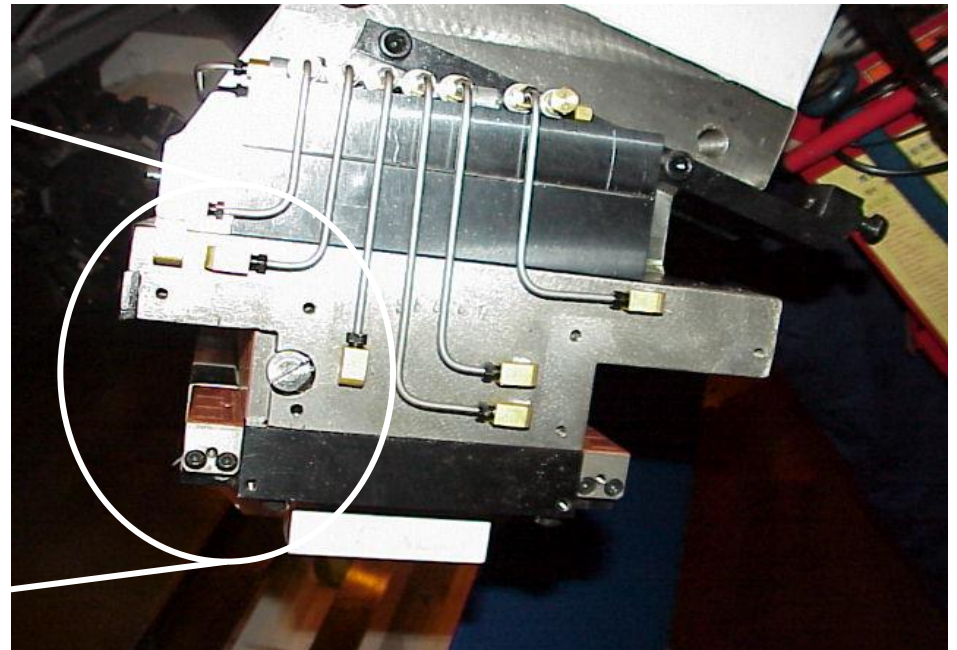
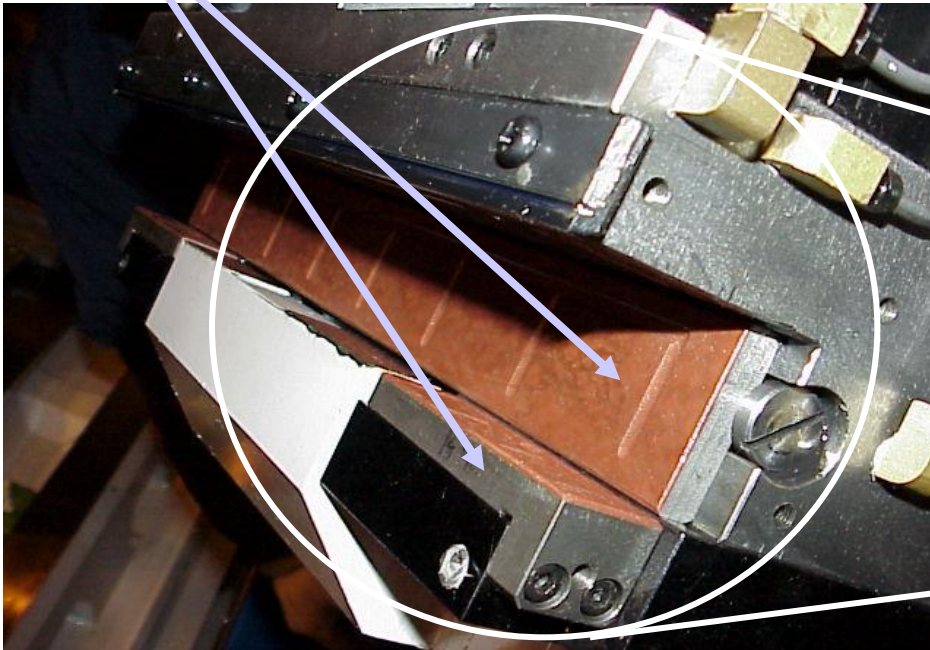


4 Programmable Steady Rest (Follow type)

This is derived from basic type of Programmable steady rest. All functional features are the same with basic type Programmable steady rest. Strong point of this kind of rest can move and support part continuously following the cutting point of Z-axis direction.

Bottom side of mounting body for steady rest is designed to act as saddle sliding with Gibs, Rullon and oil groove treatment.

Gib

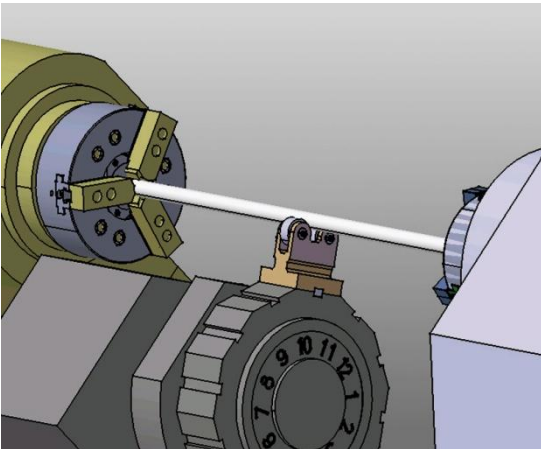


Servo-driven steady rest



- Positioning control of steady rest body is executed by linear motion control of ball screw and servo motor.
- Therefore, we can get better cutting results because steady rest can be controlled simultaneously together with cutting process of tool tip.
- In addition, operators can shorten the time to be required for total operation because all operations do not need any manual processes
- **Applicable machine : PUMA MX, TL series without lower turret**
- **Field retrofit : Not applicable**

Semi-steady rest



- **As optional application, the left figure shows simple steady rest for the machine equipped with lower turret such as PUMA MX2000/2500 T/ST and PUMA TT2000/2500, TL2000/2500 series.**
- Instead of tool holder, simple device is mounted on the lower turret base to support long parts.
- Though its applicable range is limited, it is useful for simple purpose to sustain long parts without any high cost
- **Field retrofit : Applicable**